

ABSTRACT

In one aspect, the invention provides methods and apparatus facilitating an adjustable-stiffness prosthesis or orthosis (including approximations to
5 arbitrarily definable non-linear spring functions). Spring rates may be varied under no-load conditions during a walking gate cycle to minimize power consumption. In another aspect, the invention provides methods and apparatus for outputting positive power from a prosthesis or orthosis, facilitating high-performance artificial limbs. In one embodiment of the invention, the positive
10 power is transferred from a functioning muscle to the prosthesis or orthosis, which mimics or assists a non-functioning or impaired muscle. In another embodiment of the invention, the positive power comes from an on-board power source in the prosthesis or orthosis.